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SEP 2 2 1999

16634 County Rd. 98
Woodland, Ca 95695
September 22, 1999

Lester Snow, Executive Director
CALFED Bay-Delta Program
Draft EIS/EIR
1416 9th Street #1155
Sacramento, CA 95814

Dear Mr. Snow,

i request the EIR to include off-stream gravel pit mining on the impact of of the mercury bioacculumation in Cache Creek, the Yolo Bypass and the San Francisco Bay Estuary for the following reasons.

1. The CALFED Water Quality Workgroup identified Cache Creek as a major source of total mercury to the Yolo Bypass and the San Francisco Bay Estuary. Cache Creek has been identified by the Clean Water Act 303(d) as an impaired waterway due to mercury. I quote from their paper titled, "Metals Water Quality Group, Mercury", "page 2 paragraph 3, as follows:
" The state Water Resources Control Board biennial water quality assessment lists 48,000 acres of Delta waterways as impaired because of fish consumption advisories for mercury. Water bodies (or segments) included on the Clean Water Act Section 303 (d) impaired Water bodies list due to mercury levels include Delta waterways, Marsh Creek; in the Sacramento River watershed - the lower American River, Cache Creek the lower Feather River, Harley Gulch, Humbug Creek, the Sacramento River (from Red Bluff downstream to the Delta), Sacramento Slough, Sulfur Creek; in the San Joaquin water shed - Panoche Creek, Salt Slough, and San Carlos Creek." Cache, Putah, Bear, and Stony, are confirmed as being among those with the highest level of bioavailable mercury.

2. Yolo County has approved a deep pit gravel mining project for fourteen miles, (17,000 acres) on either side of Cache Creek (Capay to Yolo). Mining will occur in the aquifer. The pits will be from 80 to 150 feet deep. Yolo County relies on the aquifer for 60% of the irrigation water and 100% of their drinking water.

3. The sediments adjacent to the stream must be similar to those instream because Cache Creek is an ephemeral stream in the area designated for deep pit mining. The steam bed is shallow and historic flooding has built the top soil along the stream from the same sediments that are instream. The flood waters share the mercury load originating in the mercury mines upstream.

4. A reclamation plan for the deep pits along Cache Creek includes wetlands or

standing water in the pits, a perfect condition for the methylation of mercury.

5. California streams with deep pit gravel mining adjacent to the stream experience pit recapture. In 1995 every off-stream gravel pit along a mile wide stretch of the Russian River was captured during high water.

Off-stream mining has the potential to dramatically increase methylated mercury in the San Francisco Bay Estuary. The above information proves how this can happen. The serious problem is time. By the time the complete process occurs it is too late. The EIR must answer the questions inherent in the above information that allows action in a timely manner. A moratorium should be placed on off-stream deep pit gravel mining if the investigation proves increased mercury is possible from such mining.

Cache Creek is not the only stream with off stream mining. Many Sierra streams carry the serious mercury loads from past gold mining practices. The question raised by the above information also applies to the Sierra streams.

Sally Oliver, Yolo County farmer

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Title: Metals Water Quality Group, Mercury

(CALFED Water Quality Workgroup)

Summary

Mercury levels of certain species of fish in the Sacramento-San Joaquin Delta and San Francisco Bay are high enough to result in advisories for human consumption. The mercury that has accumulated in the Delta and Bay, and continues to accumulate, may also be having adverse effects on wildlife, both aquatic and terrestrial. To adequately respond to these problems and to effectively address remediation, groups have formed or are interested in addressing the mercury issue, such as the Cache Creek Watershed group and the Sacramento River Basin Watershed group. This could result in a consensus among various agencies and the regulated community as to the most effective means to solve the problem. The mercury issue is complex because the total load of mercury is only one of several considerations for exposure assessment and cost-effective remediation. Studies are needed to address the current status of the processes affecting mercury bioaccumulation in the Bay/Delta region, to address the forms and potential bioavailability of mercury currently being transported to the Bay/Delta, to adequately assess the important sources of mercury, and to prioritize remediation or clean-up of the sources of mercury that are currently leading to excessive bioaccumulation of mercury. Information should also be developed on the potential benefits of controlling the mercury inputs from any source or group of sources on the excessive mercury accumulation in fish in various areas of the Delta, Bay, Sacramento River and Cache Creek. A comprehensive, technically valid and well coordinated monitoring program for mercury should address the loadings of total and methyl mercury, the concentrations of mercury in fish or other bioindicator species, the forms of the mercury, and the amounts of suspended sediment transported throughout the system. This approach is needed to document the current status of mercury contamination in this system, as well as to provide a means to quantify the success of remediation efforts. In addition, a common data base of existing mercury data, newly acquired mercury data, and geographic spatial information is necessary to store this data and to be used as a basis for regulatory or other decisions affecting water quality.

Problem Statement: Water quality problems associated with mercury occur on a global basis. The most serious problems, with respect to human health, occur when mercury accumulates in the tissue of aquatic organisms, such as fish, that are used as food. Mercury can be transported through the atmosphere from various emissions, such as power plants, or can enter aquatic systems in run-off from mining operations, or as runoff from natural geological sources. A number of mercury sources are present in California, including mining, atmospheric, and geological. Mercury has been found throughout the San Francisco Bay-Delta estuary at elevated concentrations in water, sediment and organisms. Mercury is of concern from both an environmental and human health perspective. Effects on fish include death, reduced reproductive success, impaired growth and development, and behavior abnormalities. Mercury exposure in birds can cause reproductive effects, in plants can cause death and sublethal effects.(5) The direct and additive effects of mercury within the estuary on reproduction, development and juveniles of aquatic and aquatic-feeding species is poorly understood.

In general, mercury concentrates through aquatic food chains so that organisms in higher trophic levels accumulate higher mercury concentrations. High mercury levels in sport and

recreational fish have culminated in consumption advisories in which some consumers are advised to not eat these fish. Mercury (in the form of methyl mercury) poses a serious concern to human health as it accumulates in tissue, bioaccumulates within the food web, and is a potent neurotoxin in humans. Fish found at the top of the food web can exhibit mercury tissue concentrations over one million times the mercury concentration of the surrounding water. (6) Mercury can cause nervous system damage in developing fetuses, as well as in children and adults.

In 1986, the Central Valley Regional Water Quality Control Board (Regional Board) surveyed mercury contamination in fish and sediment within the Sacramento River watershed. The Regional Board detected elevated mercury levels in sediment in the Yuba and Bear Rivers, and in Cache, Putah, and Stony Creeks. Ongoing research by the University of California, Davis, has confirmed these streams as among those with the highest levels of bioavailable mercury, as measured with in-stream bioindicator organisms. Recent sampling by the U.S. Geological Survey National Water Quality Assessment (NAWQA) Program has confirmed that elevated concentrations are still present in the sediments of the Yuba, Bear, and Cache Creeks as well as the sediments of other streams and rivers within the Sacramento River Basin. Fish captured in certain tributaries contained mercury levels that exceeded the 1973 National Academy of Sciences guidelines to protect aquatic resources and their predators. The Regional Board has also determined that mercury has caused the impairment of aquatic habitat beneficial use of the Sacramento River between the Colusa Basin Drain and the Delta. (1)

The State Water Resources Control Board (State Board) biennial water quality assessment lists 48,000 acres of Delta waterways as impaired because of fish consumption advisories for mercury. (3) Water bodies (or segments) included on the Clean Water Act Section 303(d) impaired Water bodies list due to mercury levels include: Delta waterways, Marsh Creek; in the Sacramento River watershed - the lower American River, Cache Creek, the lower Feather River, Harley Gulch, Humbug Creek, the Sacramento River (from Red Bluff downstream to the Delta), Sacramento Slough, Sulfur Creek; in the San Joaquin watershed - Panoche Creek, Salt Slough, and San Carlos Creek. (3)

In 1971, the California Department of Health Services issued a health advisory advising that pregnant women and children should not consume striped bass taken from the Bay-Delta estuary due to high mercury levels. Population levels of striped bass have increased in the Sacramento River since 1971, and therefore sport fishermen are catching more. (1)

A 1994 fish tissue contamination study in San Francisco Bay revealed mercury concentrations in fish tissue in species other than striped bass that were of human health concern. Based upon evaluation of the results of this study (including levels of other contaminants of concern), in December 1994, the California's Office of Environmental Health Hazard Assessment issued advisories concerning consumption of fish caught from the Bay. Specifically, adults were advised to limit consumption of sport fish from the Bay to two times a month; pregnant or nursing women and children 6 or under should limit consumption to one time a month. Further, large shark and striped bass from the Bay should not be consumed at all. (2)

In general, large-scale, systematic sampling of a variety of fish species have not been conducted in the Bay, the Delta, and within the Sacramento and San Joaquin River Basins. Proper protection of the public from mercury contamination requires carefully validated